

#### Standard accessories of MPI-540-PV

PVM-1 adapter	WAADAPVM1
MC4-banana sockets adapter (set)	WAADAMC4
WS-03 adapter with START button with UNI-Schuko plug (CAT III 300 V)	WAADAWS03
Test lead 1,2 m (banana plugs) yellow / red / blue / black	WAPRZ1X2YEBB / WAPRZ1X2REBB / WAPRZ1X2BUBB / WAPRZ1X2BLBB
Test lead on a reel for earth resistance measurement blue 15 m / red 30 m	WAPRZ015BUBBSZ / WAPRZ030REBBSZ
3x F-3A flexible clamp (Ø 120 mm)	WACEGF3AOKR
Crocodile clip 1 kV 20 A yellow / red / blue / black	WAKROYE20K02 / WAKRORE20K02 / WAKROBU20K02 / WAKROBL20K01
Pin probe 1 kV (banana socket) yellow / red / blue	WASONYEOGB1 / WASONREOGB1 / WASONBUOGB1
2x earth contact test probe (rod), 30 cm	WASONG30
4x voltage adapter with M4/M6 thread	WAADAM4M6
C-PV clamp	WACEGCPVOKR
Adapter for C-PV clamp	WAADACPV
Z7 power supply	WAZASZ7
Mains cable with IEC C7 plug	WAPRZLAD230
Li-Ion battery 11.1 V 3.4 Ah	WAAKU15
USB cable	WAPRZUSB
4 GB microSD card	
L2 hanging straps	WAPOZSZEKPL
M13 / L2 carrying case	WAFUTM13 / WAFUTL2
User manual	

#### Optional accessories of MPI-540-PV

EVSE-01 adapter for testing vehicle charging stations	WAADAEVSE01
Test lead for fault loop measurement (banana plugs) 5 m / 10 m / 20 m	WAPRZ005REBB / WAPRZ010REBB / WAPRZ020REBB
WS-04 adapter with UNI-SCHUKO angular plug	WAADAWS04
Three-phase socket adapter 16 A / 32 A / 63 A	WAADAAGT16P / WAADAAGT16C WAADAAGT32P / WAADAAGT32C WAADAAGT63P
Industrial socket adapter 16 A / 32 A	WAADAAGT16T / WAADAAGT32T
Test lead for earth resistance measurement 25 m / 50 m	WAPRZ025BUBBSZ / WAPRZ050YEBBSZ
AutoISO-1000C adapter	WAADAAISO10C
LP-1 / LP-10B light meter probe with WS-06 plug (set)	WAADALP1KPL / WAADALP10BKPL
C-4A (Ø 52 mm) / C-5A (Ø 39 mm) / C-6A (Ø 20 mm) / C-7A (Ø 24 mm) clamp	WACEGC4AOKR / WACEGC5AOKR / WACEGC6AOKR / WACEGC7AOKR
F-1A (Ø 360 mm) / F-2A (Ø 235 mm) flexible clamp	WACEGF1AOKR / WACEGF2AOKR
N1 transmitting clamp (Ø 52 mm)	WACEGN1BB
Hard carrying case for clamps	WAWALL2

Adapter for testing vehicle charging stations

## EVSE-01

index: WAADAEVSE01

CAT II

300 V

IP40



**Type 2 connector**  
Measurement of single- and three-phase AC charging stations



**Communication connector**  
Works with Sone! MPI devices



**Rotary switches**  
Quick and simple state simulation of the connected object



#### Works with\*



MPI-540-PV  
MPI-540  
MPI-535

MPI-507  
MPI-506  
MPI-502F

MPI-530-IT  
MPI-530  
MPI-525  
MPI-520

\* the scope of measurements depends on the capabilities and technical parameters of each model.

#### Capabilities

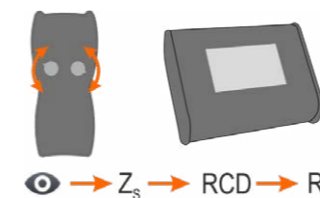
Adapter allows to perform comprehensive **measurements of electric vehicle charging stations** - quickly and in accordance with applicable regulations. Simulating the charging cable (proximity pilot line - PP) and vehicle connection status (control pilot line - CP), it will bring the station into different operating states. This will enable **measurements in the field of electric shock protection**:  $Z_s$  fault loop impedance,  $R_{iso}$  insulation resistance and checking the parameters of RCD residual current devices. To facilitate diagnostics, one of the EVSE-01 sockets is provided with **pulse width modulation signal (PWM)**.

#### Application

The EVSE-01 adapter enables measurements of AC electric vehicle charging stations with **type 2 connector**. Tests for 1-phase and 3-phase stations are available - both with and without ventilation.

#### Standard accessories of EVSE-01

Carrying case	WAFUTM6
User manual	



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We measure globally

# MPI-540-PV

More than just a multifunctional meter

## + EVSE-01

Adapter for testing vehicle charging stations



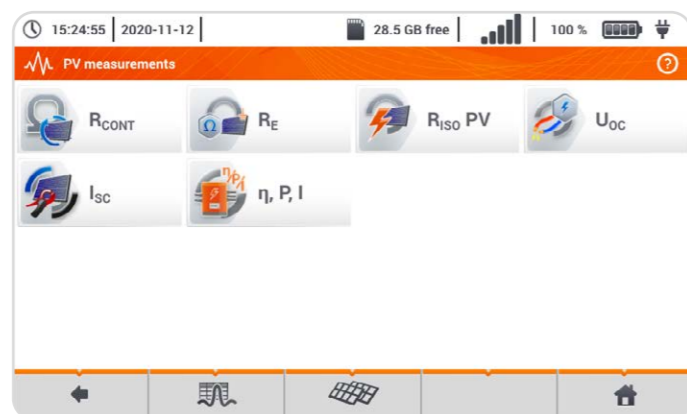
### Multitasking, accurate, reliable

The meter has **above-average functionality**.  
It combines the measuring capabilities of several devices, while ensuring equally good accuracy.

### Measurement of photovoltaic installations parameters

The MPI-540-PV instrument can measure photovoltaic installations in accordance with the EN 62446 standard:

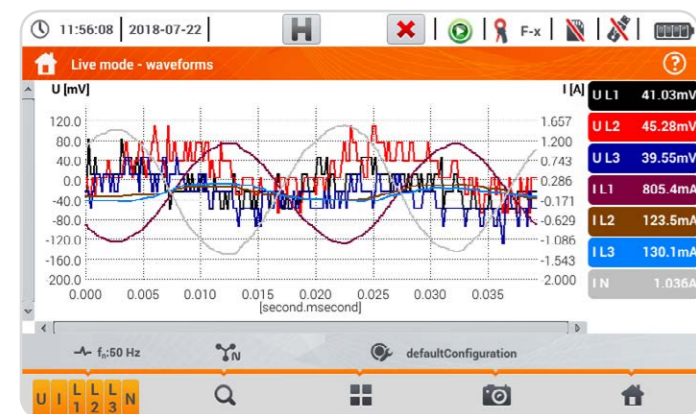
- continuity of protective and equipotential bondings,
- earth resistance,
- insulation resistance on the DC side,
- open circuit voltage  $U_{OC}$ ,
- short circuit current  $I_{SC}$ ,
- work currents and powers on both DC and AC side,
- inverter efficiency.



### Three-phase power quality recorder – basic power quality diagnostics

The instrument can record 50/60 Hz power quality parameters in accordance to S class of EN 61000-4-30:

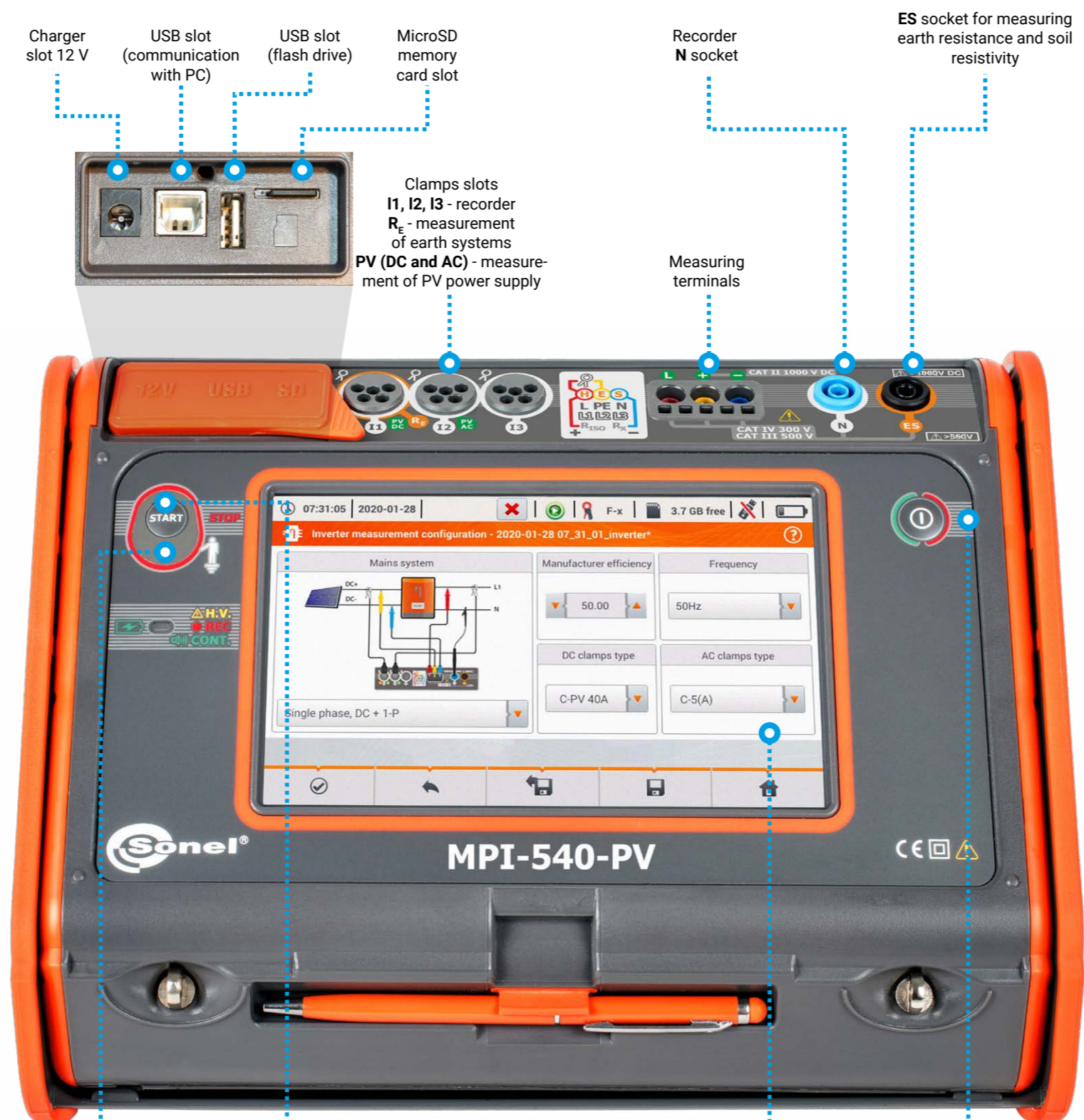
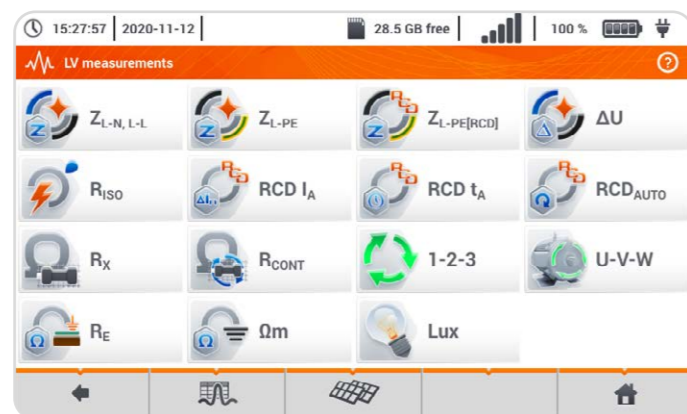
- voltage L1, L2, L3, – average values in the range up to 500 V,
- L1, L2, L3 currents, – average values, current measurement in the range up to 3 kA (depending on the current probes used),
- frequency in the range of 40 Hz – 70 Hz,
- active (P), reactive (Q) and apparent (S) power,
- power factor (PF),  $\cos\phi$ ,
- harmonics (up to 40th for voltage and current),
- total harmonic distortion (THD) for current and voltage.



### Measurement of electric shock protection parameters

The instrument can be used for all measurements for commissioning of electrical installations in accordance with applicable regulations:

- short circuit loop impedance (also in circuits secured with RCDs),
- RCD parameters,
- insulation resistance,
- earth resistance (4 measurement methods + soil resistivity measurement),
- continuity of protective and equipotential bondings,
- light intensity measurement,
- phase sequence test,
- motor rotation direction test.



Contact electrode

Starting the measurement procedure

7" color touchscreen

Turning the meter on/off

**CAT II**  
1000 V DC

**CAT III**  
500 V

Li-Ion BATTERY

Bluetooth

WiFi

7"  
touch screen

measurement of PV installations

3-phase power quality recorder

$\rho$   $R_E$   
 $R_{ISO}$   $Z_S$   $R_{CONT}$   
 $E$   
complex measurements of installations



### Photovoltaics under supervision

MPI-540-PV is an extremely universal meter, designed in particular for testing photovoltaic installations. The device allows a complete set of tests on the DC and AC side – in accordance with the guidelines of EN 62446 standard. Measuring parameters related to the photovoltaic installation, the instrument will automatically convert them to the STC (Standard Test Conditions) reference conditions. Measurements of voltage, current and power on the AC and DC side of the inverter allow to verify its efficiency. Sonel Reports PLUS software enables creating PV installation test report with measurement results saved meter's in memory.

### Cooperation with EVSE-01 adapter – testing vehicle charging stations

Using the MPI-540-PV instrument and EVSE-01 adapter, we will test EV charging stations equipped with a type 2 connector. Pre-defined autotests embedded in the meter enable performing the full range of measurements in one sequence and evaluate the obtained result. The adapter allows you to simulate the current loads of charging cables (PP) and vehicle charging states (CP).



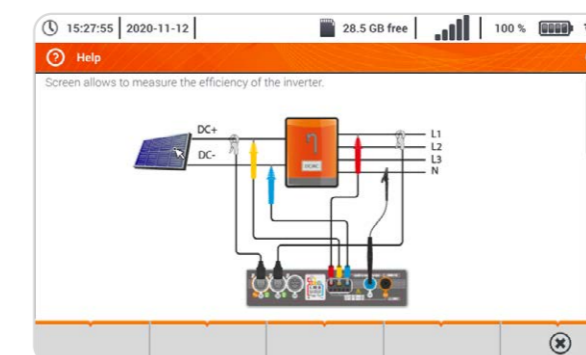
### Application – one device instead of several

The device has a three-phase power quality recorder with the LIVE mode view and the possibility to register electrical network parameters such as voltage, current, power, harmonics and THD. The meter enables reading of selected parameters and their graphic presentation on the screen in real time. These parameters are measured and displayed concurrently with the recording on the memory card. In the LIVE mode, the user can see:

- voltage and current waveforms (oscilloscope),
- voltage and current timeplots,
- a phasor graph,
- display of multiple parameters in tabular form,
- spectrum graph of current and voltage harmonics.

### Built-in help system – faster preparation of measurements

The device has built-in help screens with measurement diagrams. Thanks to this you can easily and quickly check and make sure how to connect to a given system depending on the type of performed measurement.



### Communication and software – analysis and report on the obtained results

A very strong feature of the device is the multitude of communication interfaces and cooperation with external software. You can easily transfer measurement data to your computer via USB port, removable SD memory card, or wireless communication (Bluetooth, Wi-Fi).

In order to generate a report on measurements for electric shock protection, use Sonel Reports PLUS software. Saving the downloaded data to the simplest formats and printing is provided by free Sonel Reader software. The specialized, free Sonel Analysis software is used to read and analyze data from the power quality recorder.

